



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P015724WO NAR		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/04304	International filing date (day/month/year) 06.10.2003	Priority date (day/month/year) 12.12.2002	
International Patent Classification (IPC) or both national classification and IPC G06F9/318			
Applicant ARM LIMITED			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 15.06.2004		Date of completion of this report 12.10.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Moraiti, M Telephone No. +31 70 340-4180 	

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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-19 as originally filed

Claims, Numbers

1-24 as originally filed

Drawings, Sheets

1-14 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1,13
	No: Claims	
Inventive step (IS)	Yes: Claims	1,13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1,13
	No: Claims	

2. Citations and explanations

see separate sheet

The following document (D1) is referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: WO 0042499

1. The subject matter of claim 1 appears to be novel (Rule 64.1 PCT) and inventive (Rule 65 (1) PCT) over the prior art. Thus claim 1 appears to meet the requirements of Article 33 (2) and (3) PCT, for the following reasons:
2. D1 discloses a processor responsive to a plurality of different program instructions to perform respective processing operations each requiring a number of processing cycles to complete. Moreover, D1 discloses two modes of operation, a normal mode and an expanded mode, each defining a shorter and a longer pipeline respectively (page 10, line 27 - page 11, line 15). According to the mode, a pipeline stage is either added or removed from the pipeline, in order to minimize the total execution time.
3. As a result, because of the two above mentioned pipeline modes, any instruction is capable of requiring between a minimum and a maximum number of cycles to complete.
4. D1 remains silent regarding security issues. The apparatus disclosed in D1 may be subject to unauthorised attacks, in particular because it changes the length of its pipeline according to the type of the instruction that will be executed.
5. Claim 1 offers a solution to the security problem, by forcing each instruction to take its maximum number of processing cycles, when operating in a security mode.
- ~~6. It is doubtful that the person skilled in the art starting from D1 would opt to transform the apparatus disclosed therein, so as to arrive at the subject-matter according to claim 1, in particular because the apparatus is operated in such a way that each instruction takes the minimum possible number of cycles to complete.~~
7. Claim 13 comprises the subject matter of claim 1, in terms of method steps. Therefore, for the reasons described above, the subject matter of claim 13

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appears to be novel (Rule 64.1 PCT) and inventive (Rule 65 (1) PCT) over the prior art.

8. The subject matter of claims 1 and 13 refers to the fields of computer and thus it appears to fulfill the requirements for industrial applicability of Article 33 (4) PCT.

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